What is claimed is:

1. A coding method comprising:

(a) dividing pixels of a chrominance component of an input image into blocks having a predetermined size;

(b) generating a vertical variation and a horizontal variation with respect to a current block to be predictively coded, using pixel values in an upper reference block adjacent to the current block and pixel values in a side reference block adjacent to the current block;

(c) dividing the current block into a predetermined number of regions according to the vertical and horizontal variations and generating a prediction value of each pixel in each region using a pixel value in the upper reference block or a pixel value in the side reference block; and

(d) generating a differential value between the prediction value and a corresponding real pixel value in the current block and coding the differential value using a predetermined coding method.

2. The coding method of claim 1, wherein step (c) comprises comparing the vertical variation with the horizontal variation, dividing the current block into the predetermined number of regions in a vertical direction when the horizontal variation is greater than the vertical variation, and dividing the current block into the predetermined number of regions in a horizontal direction when the vertical variation is greater than the horizontal variation.

3. The coding method of claim 2, wherein step (c) comprises dividing the current block into an upper region and a lower region in the vertical direction when the horizontal variation is greater than the vertical variation, predicting pixel values in the upper region using pixel values in the upper reference block, and predicting pixel values in the lower region using pixel values in the side reference block.

4. The coding method of claim 2, wherein step (c) comprises dividing the current block into an upper region, a middle region, and a lower region in the vertical direction when the horizontal variation is greater than the vertical variation, predicting pixel values in the upper region using pixel values in the upper reference block, predicting pixel values in the lower region using pixel values in the side reference

block, and predicting pixel values in the middle region using pixel values in the upper and side reference blocks.

5. The coding method of claim 4, wherein each pixel value in the middle region is predicted to be an average of values of pixels in the upper and side reference blocks, the pixels in the upper and side reference blocks corresponding to a position of the pixel in the middle region and being adjacent to the current block.

6. The coding method of claim 2, wherein step (c) comprises dividing the current block into a first region and a second region in a horizontal direction when the vertical variation is greater than the horizontal variation, predicting pixel values in the first region adjacent to the side reference block using pixel values in the side reference block, and predicting pixel values in the second region using pixel values in the upper reference block.

7. The coding method of claim 2, wherein step (c) comprises dividing the current block into a first region, a second region, and a third region in a horizontal direction when the vertical variation is greater than the horizontal variation, predicting pixel values in the first region adjacent to the side reference block using pixel values in the side reference block, predicting pixel values in the third region using pixel values in the upper reference block, and predicting pixel values in the second region using pixel values in the upper and side reference blocks.

8. The coding method of claim 7, wherein each pixel value in the second region is predicted to be an average of values of pixels in the upper and side reference blocks, the pixels in the upper and side reference blocks corresponding to a position of the pixel in the middle region and being adjacent to the current block.

9. The coding method of claim 1, wherein step (c) comprises:

(c1) generating a difference between the horizontal variation and the vertical variation and comparing the difference with a first threshold value;

(c2) when the difference is less than the first threshold value, obtaining an average of values of pixels adjacent to the current block in the upper reference block

and an average of values of pixels adjacent to the current block in the side reference block, and obtaining a difference between the two averages; and

(c3) when the difference between the two averages is greater than a second threshold value, defining a diagonal line crossing the current block starting from a top of an edge of the current block meeting the side reference block, generating prediction values of respective pixels in a region above the diagonal line using pixel values in the upper reference block, and generating prediction values of respective pixels in a region below the diagonal line using pixel values in the side reference block.

10. The coding method of claim 9, wherein step (c3) comprises generating a prediction value of each pixel on the diagonal line using pixel values in the upper and side reference blocks.

11. A coding method comprising:

(a) dividing pixels of a chrominance component of an input image into blocks having a predetermined size;

(b) dividing a current block to be predictively coded into a predetermined number of regions according to a predetermined number of prediction methods and generating prediction values of each pixel in the current block according to the respective prediction methods using a pixel value in an upper reference block adjacent to the current block and a pixel value in a side reference block adjacent to the current block;

(c) generating differential values between the prediction values corresponding to the respective prediction methods and a corresponding real pixel value in the current block; and

(d) selecting a differential value requiring a least number of bits for coding among the differential values and coding the selected differential value and information on a prediction method corresponding to the selected differential value using a predetermined coding method.

12. The coding method of claim 11, wherein step (b) comprises dividing the current block into an upper region and a lower region in a vertical direction, generating prediction values in the upper region using pixel values in the upper

reference block, and generating prediction values in the lower region using pixel values in the side reference block.

13. The coding method of claim 11, wherein step (b) comprises dividing the current block into a first region and a second region in a horizontal direction, generating prediction values in the first region adjacent to the side reference block using pixel values in the side reference block, and generating prediction values in the second region using pixel values in the upper reference block.

14. The coding method of claim 11, wherein step (b) comprises dividing the current block into an upper region, a middle region, and a lower region in a vertical direction, generating prediction values in the upper region using pixel values in the upper reference block, generating prediction values in the lower region using pixel values in the side reference block, and generating a prediction value of each pixel in the middle region using an average of pixel values in the respective upper and side reference blocks.

15. The coding method of claim 11, wherein step (b) comprises dividing the current block into a first region, a second region, and a third region in a horizontal direction, generating prediction values in the first region adjacent to the side reference block using pixel values in the side reference block, generating prediction values in the third region using pixel values in the upper reference block, and generating prediction values in the second region using pixel values in the upper and side reference blocks.

16. The coding method of claim 11, wherein step (b) comprises dividing the current block into two regions using a diagonal line crossing the current block starting from a top of an edge of the current block meeting the side reference block, generating prediction values of respective pixels in a region above the diagonal line using pixel values in the upper reference block, and generating prediction values of respective pixels in a region below the diagonal line using pixel values in the side reference block.

17. A coding method comprising:

(a) dividing pixels of a chrominance component of an input image into blocks having a predetermined size;

(b) selecting one among a direct current prediction method, a vertical prediction method, a horizontal prediction method, and a hybrid prediction method according to a user's input;

(c) generating a prediction value of each pixel in a current block to be predictively coded, using at least one pixel value among pixel values in an upper reference block adjacent to the current block and in a side reference block adjacent to the current block, according to the selected prediction method;

(d) generating a differential value between the prediction value and a corresponding real pixel value in the current block; and

(e) coding the differential value and information on the selected prediction method using a predetermined coding method.

18. The coding method of claim 17, wherein the hybrid prediction method comprises calculating a vertical variation and a horizontal variation with respect to the current block using pixel values adjacent to the current block in the upper and side reference blocks, dividing the current block into a predetermined number of regions according to the vertical and horizontal variations, and generating prediction values of respective pixels in each region using the pixel values in the upper and side reference blocks.

19. The coding method of claim 18, wherein the hybrid prediction method comprises comparing the vertical variation with the horizontal variation, dividing the current block into an upper region and a lower region in a vertical direction when the horizontal variation is greater than the vertical variation, generating prediction values in the upper region using pixel values in the upper reference block, and generating prediction values in the lower region using pixel values in the side reference block.

20. The coding method of claim 18, wherein the hybrid prediction method comprises comparing the vertical variation with the horizontal variation, dividing the current block into a first region and a second region in a horizontal direction when the vertical variation is greater than the horizontal variation, generating prediction values in the first region adjacent to the side reference block using pixel values in the

side reference block, and generating prediction values in the second region using pixel values in the upper reference block.

21. A method of decoding a bitstream resulting from coding a chrominance component of an image to restore the image, the method comprising:

(a) decoding each differential value for the chrominance component included in the bitstream in units of blocks using a predetermined decoding method corresponding to coding information read from the bitstream;

(b) determining whether a prediction mode indicating information on a prediction method is included in the bitstream, extracting the prediction mode from the bitstream, and determining the prediction method based on the extracted prediction mode;

(c) when it is determined that the prediction mode is not included in the bitstream, calculating a vertical variation and a horizontal variation with respect to a current block to be restored using pixel values in an upper reference block and a side reference block, which have been restored prior to the current block, and determining the prediction method according to the vertical and horizontal variations;

(d) generating a prediction value of each pixel in the current block according to the prediction method determined in step (b) or (c); and

(e) adding the prediction value to a corresponding differential value to restore the chrominance component of the image.

22. The method of claim 21, wherein the prediction method determined in step (c) comprises comparing the vertical variation with the horizontal variation, dividing the current block into a plurality of regions in a predetermined direction according to the result of comparison, and generating prediction values of respective pixels in each region using pixel values in the upper and side reference blocks.

23. The method of claim 22, wherein the prediction method determined in step (c) comprises dividing the current block into an upper region and a lower region in a vertical direction when the horizontal variation is greater than the vertical variation, predicting pixel values in the upper region using pixel values in the upper reference block, and predicting pixel values in the lower region using pixel values in the side reference block.

24. The method of claim 22, wherein the prediction method determined in step (c) comprises dividing the current block into an upper region, a middle region, and a lower region in a vertical direction when the horizontal variation is greater than the vertical variation, predicting pixels values in the upper region using pixel values in the upper reference block, predicting pixel values in the lower region using pixel values in the side reference block, and predicting pixel values in the middle region using pixel values in the upper and side reference blocks.

25. The method of claim 24, wherein each pixel value in the middle region is predicted to be an average of values of pixels in the upper and side reference blocks, the pixels in the upper and side reference blocks corresponding to a position of the pixel in the middle region and being adjacent to the current block.

26. The method of claim 22, wherein the prediction method determined in step (c) comprises dividing the current block into a first region and a second region in a horizontal direction when the vertical variation is greater than the horizontal variation, predicting pixel values in the first region adjacent to the side reference block using pixel values in the side reference block, and predicting pixel values in the second region using pixel values in the upper reference block.

27. The method of claim 22, wherein the prediction method determined in step (c) comprises dividing the current block into a first region, a second region, and a third region in a horizontal direction when the vertical variation is greater than the horizontal variation, predicting pixel values in the first region adjacent to the side reference block using pixel values in the side reference block, predicting pixel values in the third region using pixel values in the upper reference block, and predicting pixel values in the second region using pixel values in the upper and side reference blocks.

28. The method of claim 27, wherein each pixel value in the second region is predicted to be an average of values of pixels in the upper and side reference blocks, the pixels in the upper and side reference blocks corresponding to a position of the pixel in the middle region and being adjacent to the current block.

29. The method of claim 22, wherein the prediction method determined in step (c) comprises obtaining an average of values of pixels adjacent to the current block in the upper reference block and an average of values of pixels adjacent to the current block in the side reference block when a difference between the vertical variation and the horizontal variation is less than a first threshold value, defining a diagonal line crossing the current block starting from a top of an edge of the current block meeting the side reference block when the difference between the two averages is greater than a second threshold value, generating prediction values of respective pixels in a region above the diagonal line using pixel values in the upper reference block, and generating prediction values of respective pixels in a region below the diagonal line using pixel values in the side reference block.

30. A recording medium for storing a program code for executing the coding method of claim 1 in a computer, the program code being able to be read in the computer.

31. A recording medium for storing a program code for executing the coding method of claim 11 in a computer, the program code being able to be read in the computer.

32. A recording medium for storing a program code for executing the coding method of claim 17 in a computer, the program code being able to be read in the computer.

33. A recording medium for storing a program code for executing the method of claim 21 in a computer, the program code being able to be read in the computer.

34. A coding apparatus comprising:

a variation calculator, which calculates a vertical variation and a horizontal variation with respect to a current block to be predictively coded among blocks having a predetermined size, into which a chrominance component of an input image

is divided, using pixel values in an upper reference block adjacent to the current block and pixel values in a side reference block adjacent to the current block;

a hybrid predictor, which divides the current block into a predetermined number of regions according to the vertical and horizontal variations and generates a prediction value of each pixel in each region using a pixel value in the upper reference block or a pixel value in the side reference block;

a differential value generator, which generates a differential value between the prediction value and a corresponding real pixel value in the current block and codes the differential value using a predetermined coding method.

35. The coding apparatus of claim 34, wherein the hybrid predictor compares the vertical variation with the horizontal variation, divides the current block into the predetermined number of regions in a vertical direction when the horizontal variation is greater than the vertical variation, and divides the current block into the predetermined number of regions in a horizontal direction when the vertical variation is greater than the horizontal variation.

36. The coding apparatus method of claim 35, wherein the hybrid predictor divides the current block into an upper region and a lower region in the vertical direction when the horizontal variation is greater than the vertical variation, predicts pixel values in the upper region using pixel values in the upper reference block, and predicts pixel values in the lower region using pixel values in the side reference block.

37. The coding apparatus of claim 35, wherein the hybrid predictor divides the current block into an upper region, a middle region, and a lower region in the vertical direction when the horizontal variation is greater than the vertical variation, predicts pixel values in the upper region using pixel values in the upper reference block, predicts pixel values in the lower region using pixel values in the side reference block, and predicts pixel values in the middle region using pixel values in the upper and side reference blocks.

38. The coding apparatus of claim 37, wherein each pixel value in the middle region is predicted to be an average of values of pixels in the upper and side

reference blocks, the pixels in the upper and side reference blocks corresponding to a position of the pixel in the middle region and being adjacent to the current block.

39. The coding apparatus of claim 35, wherein the hybrid predictor divides the current block into a first region and a second region in a horizontal direction when the vertical variation is greater than the horizontal variation, predicts pixel values in the first region adjacent to the side reference block using pixel values in the side reference block, and predicts pixel values in the second region using pixel values in the upper reference block.

40. The coding apparatus of claim 35, wherein the hybrid predictor divides the current block into a first region, a second region, and a third region in a horizontal direction when the vertical variation is greater than the horizontal variation, predicts pixel values in the first region adjacent to the side reference block using pixel values in the side reference block, predicts pixel values in the third region using pixel values in the upper reference block, and predicts pixel values in the second region using pixel values in the upper and side reference blocks.

41. The coding apparatus of claim 40, wherein each pixel value in the second region is predicted to be an average of values of pixels in the upper and side reference blocks, the pixels in the upper and side reference blocks corresponding to a position of the pixel in the middle region and being adjacent to the current block.

42. The coding apparatus of claim 34, wherein the hybrid predictor comprises:

a comparator, which generates a difference between the horizontal variation and the vertical variation and compares the difference with a first threshold value, obtains an average of values of pixels adjacent to the current block in the upper reference block and an average of values of pixels adjacent to the current block in the side reference block when the difference between the horizontal variation and the vertical variation is less than the first threshold value, and obtains a difference between the two averages; and

a prediction value generator, which defines a diagonal line crossing the current block starting from a top of an edge of the current block meeting the side

reference block when the difference between the two averages is greater than a second threshold value, generates prediction values of respective pixels in a region above the diagonal line using pixel values in the upper reference block, and generates prediction values of respective pixels in a region below the diagonal line using pixel values in the side reference block.

43. The coding apparatus of claim 42, wherein the prediction value generator generates a prediction value of each pixel on the diagonal line using pixel values in the upper and side reference blocks.

44. A coding apparatus comprising:

a hybrid predictor, which divides a current block to be predictively coded among blocks having a predetermined size, into which a chrominance component of an input image is divided, into a predetermined number of regions according to a predetermined number of prediction methods and generates prediction values of each pixel in the current block according to the respective prediction methods using a pixel value in an upper reference block adjacent to the current block and a pixel value in a side reference block adjacent to the current block;

a differential value generator, which generates differential values between the prediction values corresponding to the respective prediction methods and a corresponding real pixel value in the current block;

a selector, which selects a differential value requiring a least number of bits for coding among the differential values; and

a coder, which codes the selected differential value and information on a prediction method corresponding to the selected differential value using a predetermined coding method.

45. The coding apparatus of claim 44, wherein the hybrid predictor divides the current block into an upper region and a lower region in a vertical direction, generates prediction values in the upper region using pixel values in the upper reference block, and generates prediction values in the lower region using pixel values in the side reference block.

46. The coding apparatus of claim 44, wherein the hybrid predictor divides the current block into a first region and a second region in a horizontal direction, generates prediction values in the first region adjacent to the side reference block using pixel values in the side reference block, and generates prediction values in the second region using pixel values in the upper reference block.

47. The coding apparatus of claim 44, wherein the hybrid predictor divides the current block into an upper region, a middle region, and a lower region in a vertical direction, generates prediction values in the upper region using pixel values in the upper reference block, generates prediction values in the lower region using pixel values in the side reference block, and generates a prediction value of each pixel in the middle region using an average of pixel values in the respective upper and side reference blocks.

48. The coding apparatus of claim 44, wherein the hybrid predictor divides the current block into a first region, a second region, and a third region in a horizontal direction, generates prediction values in the first region adjacent to the side reference block using pixel values in the side reference block, generates prediction values in the third region using pixel values in the upper reference block, and generates prediction values in the second region using pixel values in the upper and side reference blocks.

49. The coding apparatus of claim 44, wherein the hybrid predictor divides the current block into two regions using a diagonal line crossing the current block starting from a top of an edge of the current block meeting the side reference block, generates prediction values of respective pixels in a region above the diagonal line using pixel values in the upper reference block, and generates prediction values of respective pixels in a region below the diagonal line using pixel values in the side reference block.

50. A coding apparatus comprising:

a selector, which selects one among predetermined prediction methods comprising a direct current prediction method, a vertical prediction method, a

horizontal prediction method, and a hybrid prediction method according to a user's input;

a predictor, which generates a prediction value of each pixel in a current block to be predictively coded among blocks having a predetermined size, into which a chrominance component of an input image is divided, using at least one pixel value among pixel values in an upper reference block above the current block and in a side reference block on left of the current block, according to the selected prediction method;

a differential value generator, which generates a differential value between the prediction value and a corresponding real pixel value in the current block; and

a coder, which codes the differential value and information on the selected prediction method using a predetermined coding method.

51. The coding apparatus of claim 50, wherein the predictor comprises a hybrid predictor, and the hybrid predictor calculates a vertical variation and a horizontal variation with respect to the current block using pixel values adjacent to the current block in the upper and side reference blocks, divides the current block into a predetermined number of regions according to the vertical and horizontal variations, and generates prediction values of respective pixels in each region using the pixel values in the upper and side reference blocks.

52. The coding apparatus of claim 51, wherein the hybrid predictor compares the vertical variation with the horizontal variation, divides the current block into an upper region and a lower region in a vertical direction when the horizontal variation is greater than the vertical variation, generates prediction values in the upper region using pixel values in the upper reference block, and generates prediction values in the lower region using pixel values in the side reference block.

53. The coding apparatus of claim 51, wherein the hybrid predictor compares the vertical variation with the horizontal variation, divides the current block into a first region and a second region in a horizontal direction when the vertical variation is greater than the horizontal variation, generates prediction values in the first region adjacent to the side reference block using pixel values in the side

reference block, and generates prediction values in the second region using pixel values in the upper reference block.

54. An apparatus for decoding a bitstream resulting from coding a chrominance component of an image to restore the image, the apparatus comprising:

a decoder, which decodes each differential value for the chrominance component included in the bitstream in units of blocks using a predetermined decoding method corresponding to coding information read from the bitstream;

a prediction method determiner, which determines whether a prediction mode indicating information on a prediction method is included in the bitstream, extracts the prediction mode from the bitstream when the prediction mode is determined as being included in the bitstream, determines the prediction method based on the extracted prediction mode, calculates a vertical variation and a horizontal variation with respect to a current block to be restored using pixel values in an upper reference block and a side reference block, which have been restored prior to the current block, when the prediction mode is determined as not being included in the bitstream, and determines the prediction method according to the vertical and horizontal variations;

a prediction value generator, which generates a prediction value of each pixel in the current block according to the determined prediction method; and

a predictive compensator, which adds the prediction value to a corresponding differential value to restore the chrominance component of the image.

55. The apparatus of claim 54, wherein when the prediction method is determined according to the vertical and horizontal variations, the prediction value generator compares the vertical variation with the horizontal variation, divides the current block into a plurality of regions in a predetermined direction according to the result of comparison, and generates prediction values of respective pixels in each region using pixel values in the upper and side reference blocks.

56. The apparatus of claim 55, wherein when the prediction method is determined according to the vertical and horizontal variations, the prediction value generator divides the current block into an upper region and a lower region in a

vertical direction when the horizontal variation is greater than the vertical variation, predicts pixel values in the upper region using pixel values in the upper reference block, and predicts pixel values in the lower region using pixel values in the side reference block.

57. The apparatus of claim 55, wherein when the prediction method is determined according to the vertical and horizontal variations, the prediction value generator divides the current block into an upper region, a middle region, and a lower region in a vertical direction when the horizontal variation is greater than the vertical variation, predicts pixels values in the upper region using pixel values in the upper reference block, predicts pixel values in the lower region using pixel values in the side reference block, and predicts pixel values in the middle region using pixel values in the upper and side reference blocks.

58. The apparatus of claim 57, wherein each pixel value in the middle region is predicted to be an average of values of pixels in the upper and side reference blocks, the pixels in the upper and side reference blocks corresponding to a position of the pixel in the middle region and being adjacent to the current block.

59. The apparatus of claim 55, wherein when the prediction method is determined according to the vertical and horizontal variations, the prediction value generator divides the current block into a first region and a second region in a horizontal direction when the vertical variation is greater than the horizontal variation, predicts pixel values in the first region adjacent to the side reference block using pixel values in the side reference block, and predicts pixel values in the second region using pixel values in the upper reference block.

60. The apparatus of claim 55, wherein when the prediction method is determined according to the vertical and horizontal variations, the prediction value generator divides the current block into a first region, a second region, and a third region in a horizontal direction when the vertical variation is greater than the horizontal variation, predicts pixel values in the first region adjacent to the side reference block using pixel values in the side reference block, predicts pixel values in the third region using pixel values in the upper reference block, and predicts pixel

values in the second region using pixel values in the upper and side reference blocks.

61. The apparatus of claim 60, wherein each pixel value in the second region is predicted to be an average of values of pixels in the upper and side reference blocks, the pixels in the upper and side reference blocks corresponding to a position of the pixel in the middle region and being adjacent to the current block.

62. The apparatus of claim 55, wherein when the prediction method is determined according to the vertical and horizontal variations, the prediction value generator obtains an average of values of pixels adjacent to the current block in the upper reference block and an average of values of pixels adjacent to the current block in the side reference block when a difference between the vertical variation and the horizontal variation is less than a first threshold value, defines a diagonal line crossing the current block starting from a top of an edge of the current block meeting the side reference block when the difference between the two averages is greater than a second threshold value, generates prediction values of respective pixels in a region above the diagonal line using pixel values in the upper reference block, and generates prediction values of respective pixels in a region below the diagonal line using pixel values in the side reference block.